

What is claimed is:

1. A method for manufacturing a semiconductor device comprising forming a resin enclosure for block-molding a plurality of semiconductor chips by placing a plurality of semiconductor chips inside a cavity of a molding die along with a substrate and then injecting a resin inside said cavity from a first side to a second side of a main surface of said substrate, the plurality of semiconductor chips being mounted on the main surface of said substrate from the first side to the second side of said main surface with a predetermined space, the second side facing to said first side,

wherein the method further comprises removing impurities remaining on the main surface of said substrate before forming said resin enclosure.

2. The method for manufacturing the semiconductor device according to claim 1, wherein removing impurities remaining on the main surface of said substrate is performed by plasma cleaning.

3. The method for manufacturing the semiconductor device according to claim 2, wherein said plasma cleaning removes impurities remaining on the main surface of said substrate and roughens the main surface of said substrate.

4. The method for manufacturing the semiconductor device according to claim 1 further comprising mounting said plurality of semiconductor chips on the main surface of said substrate before forming said resin enclosure,

wherein removing impurities remaining on the main surface of said substrate is performed after mounting said plurality of semiconductor chips and before forming said resin enclosure.

5. The method for manufacturing the semiconductor device according to claim 4, wherein mounting said plurality of semiconductor chips includes attaching and fixing said semiconductor chip on the main surface of said substrate and electrically connecting electrode pads formed on a main surface of said semiconductor chip to connecting parts formed on the main surface of said substrate with bonding wires.

6. The method for manufacturing the semiconductor device according to claim 5 further comprising removing impurities remaining on surfaces of the electrode pads of said semiconductor chip and surfaces of the connecting parts of said substrate by plasma cleaning after attaching and fixing said semiconductor chip and before electrically connecting with said bonding wires.

7. The method for manufacturing the semiconductor device according to claim 1, wherein said substrate is a resin substrate.

8. The method for manufacturing the semiconductor device according to claim 1, wherein said substrate has a resin film on the main surface thereof.

9. The method for manufacturing the semiconductor device according to claim 1, wherein said semiconductor chip is formed to have a rectangular plane, and

two sides of said semiconductor chip facing each other are crossed to an injecting direction of said resin.

10. The method for manufacturing the semiconductor device according to claim 1, wherein said resin is mixed with many fillers.

11. The method for manufacturing the semiconductor device according to claim 1, wherein said resin is an epoxy thermosetting resin mixed with many fillers.

12. The method for manufacturing the semiconductor device according to claim 1 further comprising separating said resin enclosure and said substrate into each of said semiconductor

chips after forming said resin enclosure.

13. A method for manufacturing a semiconductor device comprising forming a resin enclosure for block-molding a plurality of semiconductor chips by placing a plurality of semiconductor chips inside a cavity of a molding die along with a substrate and then injecting a resin inside said cavity from a first side to a second side of a main surface of said substrate, the plurality of semiconductor chips being mounted on the main surface of said substrate from the first side to the second side of said main surface with a predetermined space, the second side facing to said first side,

wherein the method further comprises surface roughening treatment is applied to the main surface of said substrate before forming said resin enclosure.

14. The method for manufacturing the semiconductor device according to claim 13, wherein said surface roughening treatment is performed by plasma cleaning.

15. The method for manufacturing the semiconductor device according to claim 14, wherein said plasma cleaning removes impurities remaining on a main surface of said substrate and roughens the main surface of said substrate.

16. The method for manufacturing the semiconductor device according to claim 13 further comprising mounting said plurality of semiconductor chips on the main surface of said substrate before forming said resin enclosure,

wherein applying said surface roughening treatment is performed after mounting said plurality of semiconductor chips and before forming said resin enclosure.

17. The method for manufacturing the semiconductor device according to claim 16, wherein mounting said plurality of semiconductor chips includes attaching and fixing said semiconductor chip on the main surface of said substrate and electrically connecting electrode pads formed on a main surface of said semiconductor chip to connecting parts formed on the main surface of said substrate with bonding wires.

18. The method for manufacturing the semiconductor device according to claim 17 further comprising applying cleaning treatment to surfaces of the electrode pads of said semiconductor chip and surfaces of the connecting parts of said substrate by plasma cleaning after attaching and fixing said semiconductor chip and before electrically connecting with said bonding wires.

19. The method for manufacturing the semiconductor device

according to claim 13, wherein said substrate is a resin substrate.

20. The method for manufacturing the semiconductor device according to claim 13, wherein said substrate has a resin film on the main surface thereof.

21. The method for manufacturing the semiconductor device according to claim 13, wherein said semiconductor chip is formed to have a rectangular plane, and  
two sides of said semiconductor chip facing each other are crossed in an injecting direction of said resin.

22. The method for manufacturing the semiconductor device according to claim 13, wherein said resin is mixed with many fillers.

23. The method for manufacturing the semiconductor device according to claim 13, wherein said resin is an epoxy thermosetting resin mixed with many fillers.

24. The method for manufacturing the semiconductor device according to claim 13 further comprising separating said resin enclosure and said substrate into each of said semiconductor chips after forming said resin enclosure.

25. A method for manufacturing a semiconductor device comprising forming a resin enclosure for block-molding a plurality of semiconductor chips by placing a plurality of first semiconductor chips and a plurality of second semiconductor chips laminated on each of said plurality of first semiconductor chips inside a cavity of a molding die along with a substrate and then injecting a resin inside said cavity from a first side to a second side of a main surface of said substrate, the plurality of first semiconductor chips being mounted on the main surface of said substrate from the first side to the second side of said main surface with a predetermined space, the second side facing to said first side, wherein the method further comprises removing impurities remaining on the main surface of said substrate before forming said resin enclosure.

26. The method for manufacturing the semiconductor device according to claim 25, wherein removing impurities remaining on the main surface of said substrate is performed by plasma cleaning.

27. A method for manufacturing a semiconductor device comprising forming a resin enclosure for block-molding a plurality of semiconductor chips by placing a plurality of first semiconductor chips and a plurality of second

semiconductor chips laminated on each of said plurality of first semiconductor chips inside a cavity of a molding die along with a substrate and then injecting a resin inside said cavity from a first side to a second side of a main surface of said substrate, the plurality of first semiconductor chips being mounted on the main surface of said substrate from the first side to the second side of said main surface with a predetermined space, the second side facing to said first side, wherein the method further comprises applying surface roughening treatment to the main surface of said substrate before forming said resin enclosure.

28. The method for manufacturing the semiconductor device according to claim 27, wherein said surface roughening treatment is performed by plasma cleaning.

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